United States
Environmental Protection
Agency

Office of Public Affairs
Region 5
77 West Jackson Boulevard
Chicago

Illinois Indiana
Michigan Minnesota
Ohio Wisconsin

U.S. EPA PROPOSES ACTION FOR STOPPING SPREAD OF CONTAMINATED GROUND WATER AT LINCOLN FIELDS SITE

Madison Township, Richland County, Ohio **July 1997**

This Fact Sheet Explains:

- the background of the site;
- ongoing site investigations and actions;
- public health risks posed by the site;
- alternatives considered for addressing ground-water contamination;
- U.S. EPA's recommended alternative; and
- activities planned for the site.

Public Comment Period

U.S. EPA will accept written comments on its recommended alternative, which is also presented in the EE/CA report, during a 30-day public comment period:

July 14 to August 13, 1997

Public Meeting

U.S. EPA will hold a public meeting in Madison Township to explain and answer questions about the EE/CA. Oral and written comments will be accepted at the meeting on:

Date: Tuesday, July 15, 1997
Time: 7 p.m.
Place: Mansfield Baptist Temple Gymnasium
752 N. Stewart Road
Mansfield, OH

INTRODUCTION

The U.S. Environmental Protection Agency (U.S. EPA) has completed an engineering evaluation and cost analysis (EE/CA) for the Lincoln Fields ground-water contamination site in Madison Township, Richland County, Ohio. The twofold purpose of the EE/CA was to evaluate alternatives for preventing contaminated ground water from moving off site and reducing contaminant levels in the ground water with the ultimate goal of restoring it to beneficial use. The ground-water action taken as a result of the EE/CA, which is called a removal action, is expected to be the final remedy for the Lincoln Fields site.

The EE/CA assessed two alternatives for addressing contaminated ground water at the site. Both alternatives include pumping contaminated ground water from the ground and treating the water as well as removing contaminated soil that acts as a source of ground-water contamination. This fact sheet announces U.S. EPA's recommended alternative and describes the other alternative that was evaluated in the EE/CA. A detailed description of both alternatives is presented in the EE/CA report.[1]

Public input on U.S. EPA's recommended alternative is important to the cleanup remedy selection process. Based on new information obtained through public comment, U.S. EPA may modify its recommended alternative or select the other alternative presented in this fact sheet. The public is encouraged to review and comment on U.S. EPA's recommended alternative.

BACKGROUND

The Lincoln Fields site is an area of contaminated ground water located in a residential and commercial section of Madison Township in Richland County, Ohio. The site, which borders the city of Mansfield, measures about 1 square mile. The site is bordered by Yale Avenue to the north, Stewart Road to the east, Grace Street to the south, and Illinois Avenue to the west. About 1,000 residents live within the site boundaries and rely on ground water as their sole source of drinking water.

About 80 homes within the Lincoln Fields site boundaries receive drinking water from the Lincoln Fields Water Association, which formerly drew water from two

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1 *Section 300.415(b)(4)(I) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Section 113(k)(2) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) require publication of a notice describing U.S. EPA's recommended alternative. The EE/CA report must also be made available to the public for comment. This fact sheet is a summary of information contained in the EE/CA report for the Lincoln Fields site. Please consult the EE/CA report for more detailed information.*

on-site community wells known as the Duke and Lehigh wells. In 1993, the Duke well was removed from service because previous ground-water sampling activities done by the Lincoln Fields Water Association and the Ohio Environmental Protection Agency (Ohio EPA) had revealed the presence of various volatile organic compounds (VOCs). VOCs are chemical substances that evaporate readily at room temperature.

VOCs discovered in ground water at the Lincoln Fields site in 1991 include the following: tetrachloroethylene (PCE); trichloroethylene; 1,1,1-trichloroethane; and cis-1,2-dichloroethylene. PCE, the most widespread site contaminant, is a manufactured chemical commonly used for dry cleaning and for removing grease from metal surfaces. PCE is a nonflammable liquid that evaporates quickly when exposed to air. People using drinking water from wells contaminated with PCE can be exposed to the chemical by drinking the water and by inhaling contaminated water vapor.

Ground-water samples collected at the site during four rounds of sampling in 1991 and two rounds of sampling in 1993 consistently contained PCE. The Duke well was removed from service after results revealed levels of PCE contamination above the federal safe exposure level for human ingestion, known as the maximum contaminant level (MCL), of 5 parts per billion (ppb). The Lehigh well remains in service and has generally shown levels of PCE below the MCL. However, recent sampling of the Lehigh well has indicated an increasing trend in PCE levels.

In April 1995, U.S. EPA contractors installed temporary filters on taps in 51 homes in this area to remove PCE from drinking water. These homes were selected because PCE concentrations were highest in ground-water samples collected from this part of the site. These filters will remain in place until a permanent alternate water supply is provided for these homes.

ONGOING SITE INVESTIGATIONS AND ACTIONS

U.S. EPA and Ohio EPA are conducting two studies at the Lincoln Fields site. The first study involves evaluating and installing an alternate water supply system for residents of affected areas of the site. In November 1995,U.S. EPA selected construction of a new Lincoln Fields water supply system as an appropriate remedy for the site. Design and construction of the new water supply system are being done by the U.S. Army Corps of Engineers and its consultants. This new water system is expected to be completed in late 1997 or early 1998.

The second study, called an expanded site inspection and remedial investigation (ESI/RI), involves characterizing the site's physical features and the extent of contamination. The ESI/RI report was completed in 1996. ESI/RI results show that site ground water naturally flows to the south-southwest and that an area of PCE contamination known as a contaminant plume exists beneath the site. The ESI/RI results were used as the basis for an EE/CA report which evaluates two alternatives for containing the contaminant plume to prevent it from spreading off site and reducing contaminant levels in site ground water.

SUMMARY OF SITE RISKS

As part of the ESI/RI, U.S. EPA prepared a risk assessment to determine potential health risks posed by contamination at the Lincoln Fields site. The results of the risk assessment were summarized in the EE/CA. In the risk assessment, U.S. EPA identified the chemicals present in ground water at the site and evaluated which of these chemicals may pose health risks to the community. The risk assessment focused on health risks posed by ingesting, touching, and inhaling VOCs in site ground water over different periods of time.

The risk assessment evaluated two types of health risks to current and future residents. First, it assessed the likelihood of affected residents developing cancer from being exposed to VOCs in ground water. Second, it assessed the likelihood of affected residents developing non-cancer-related health effects such as liver and kidney ailments from exposure to VOCs in ground water. Risks were estimated by calculating how much contamination a person would be exposed to over certain time periods and comparing this amount to the amount of contamination that causes adverse health effects.

During the risk assessment, U.S. EPA determined that ground water containing elevated levels of VOCs at the site presents both cancer risks and non-cancer-related health risks above U.S. EPA's "acceptable" risk ranges. The risk assessment showed that the cancer risks are associated with ingesting VOCs in ground water and the non-cancer-related risks are associated with ingesting and inhaling VOCs in ground water.

REMOVAL ALTERNATIVES CONSIDERED

The EE/CA considered two alternatives called Alternative 1 and Alternative 2 for containing contaminated ground water and for reducing contaminant levels in the ground water. These alternatives are summarized below and are described in detail in the EE/CA report. A copy of the EE/CA report is available for review at the U.S. EPA information repository and administrative record locations listed on the back page of this fact sheet.

Both alternatives considered for the Lincoln Fields site include extracting ground water from below the ground surface and treating the ground water to reduce contaminant levels as well as removing contaminated soil. The two alternatives are identical except for the way treated ground water would be discharged. Under Alternative 1, treated ground water would be discharged to a manhole leading to the existing sewer system, which eventually leads to the Mansfield Waste Water Treatment Plant. Under Alternative 2, treated ground water would be discharged to an unnamed creek in the northwest portion of the site.

U.S. EPA's RECOMMENDED ALTERNATIVE

Based on the results of the EE/CA, U.S. EPA believes that Alternative 2 is the better alternative for containing contaminated ground water at the Lincoln Fields site and for reducing contaminant levels in the ground water so as to restore it to beneficial use. As described in the EE/CA report, this alternative meets U.S. EPA's evaluation criteria (see *Evaluating the Alternatives* below) while meeting the overall objectives of ground-water containment and contaminant reduction.

Under U.S. EPA's recommended alternative, five ground-water extraction wells would be installed in the Lincoln Fields site area. The map on page 7 shows the locations of all components of the alternative. Contaminated ground water would be extracted using ground-water extraction wells and treated with a commonly used technology known as air stripping. An air stripping system removes VOCs from contaminated water by forcing an air stream through the water and causing the VOCs to evaporate. Over many years, air stripping would reduce VOCs in ground water to safe levels, protecting site residents from the health risks currently posed by these contaminants. Treated ground water would be discharged to the unnamed creek just north of Forest Drive. The water would be discharged using a deflection system to minimize erosion of the stream bed.

The most important feature of U.S. EPA's recommended alternative is that the sperad of contaminated ground water would be stopped by the precise pumping rates of the five ground-water extraction wells. This would prevent future contamination of drinking water supplies in areas adjacent to the Lincoln Fields community.

In addition, soil acting as a source of ground-water contamination would be excavated. Site investigation results show that 700 cubic yards of soil in an area near the southwest corner of Ashland Road and Michigan Avenue requires removal. Care would be taken during

EVALUATING THE ALTERNATIVES

U.S. EPA used the following three criteria to compare the alternatives during the EE/CA and to recommend a practical cleanup alternative for the Lincoln Fields site:

1. **Effectiveness** - Refers to the ability of a cleanup alternative to meet the objectives within the scope of the removal action, especially with regard to protection of public health and the environment.

2. **Implementability** - Considers the technical and administrative feasibility of implementing an alternative, such as the availability of required goods and services.

3. **Cost** - Refers to an alternative's estimated capital, operation, and maintenance costs expressed as present-worth costs (present-worth cost is an alternative's total cost over time in terms of today's dollars).

soil excavation to minimize dust emissions and to protect structures surrounding the excavation area. Excavated soil would be sampled and transported off site to an appropriate disposal facility. The excavated area would then be backfilled with clean soil. Because some asphalt pavement would have to be removed during excavation, new pavement would be installed to match the existing pavement after excavation and backfilling are complete.

A detailed comparison of the two alternatives in the EE/CA report shows that both alternatives would be equally effective in meeting the removal action objectives of protecting human health and the environment by containing contaminated ground water and reducing contaminant levels in ground water. The recommended alternative, however, would be easier to implement and less expensive than Alternative 1. A summary of the comparison of alternatives is presented in the table below.

About three months would be required to prepare the engineering plan for the removal action, and an additional four months would be required to construct all components of the action. Ground water would be extracted and treated for as long as necessary to contain the ground-water contamination and reduce it to safe levels. The effectiveness of the recommended alternative would be routinely evaluated during its implementation. The EE/CA assumes that ground water would be extracted and treated for 30 years. The estimated cost of the alternative is $850,000.

COMPARISON OF REMOVAL ACTION ALTERNATIVES

Evaluation Criterion	Alternative 1	Alternative 2
Effectiveness	**Equal** The alternatives would be equally effective in stopping the spread of contaminated ground water and reducing the level of contamination in ground water.	

Implementability	Less Implementable	More Implementable
	This alternative would require coordination with the Mansfield Waste Water Treatment Plant and may require meeting excessively stringent treatment standards that would make the alternative administratively infeasible.	This alternative would not require coordination with the Mansfield Waste Water Treatment Plant or excessively stringent treatment standards.
Cost	**Higher Cost**	**Lower Cost**
	The present-worth cost of this alternative would be $2 million.	The present-worth cost of this alternative would be $850,000.

THE NEXT STEP

U.S. EPA will consider comments received during the public comment period from July 14 to August 13, 1997, before selecting a final alternative. The final alternative will be described in a decision document called an Action Memorandum that will be made available for public review in Fall 1997.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on U.S. EPA's recommended cleanup alternatives for the Lincoln Fields site is important. Public comments assist U.S. EPA in selecting its final plan.

You may use the space below to write your comments on U.S. EPA's recommended alternative. All comments must be postmarked by August 13, 1997, If you have questions about the comment period, contact Susan Pastor, U.S. EPA Community Involvement Coordinator, at 312-353-1325 or toll free at 800-621-8431. Comments may also be sent electronically to pastor.susan@epamail.epa.gov.

Name _____

Affiliation _____

Address _____

City _____

State _____ Zip _____

LINCOLN FIELDS SITE
PUBLIC COMMENT SHEET

Detach this page, fold on dashed lines, staple, stamp, and mail

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Name _____
Address _____
City _____ State ____
Zip _____

Place
stamp
here
FIRST CLASS

Susan Pastor
Community Involvement Coordinator
Office of Public Affairs
U.S. EPA (P-19J)
77 West Jackson Boulevard
Chicago, IL 60604-3590

ADDITIONAL INFORMATION

If you have questions or would like additional information about the EE/CA, please contact the individuals listed below.

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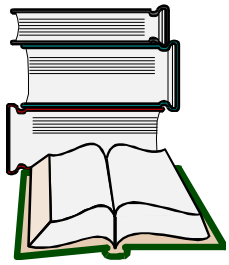
Change in U.S. EPA's Community Involvement Coordinator

Susan Pastor has replaced Virginia Narsete as U.S. EPA's community involvement coordinator for the Lincoln Fields site. Ms. Pastor is not new to the site; she served as U.S. EPA's community involvement coordinator for the site from 1994 through 1995.

An information repository containing site-related documents is located at:

Mansfield Public Library -
Madison Township Branch
1395 Grace St.
Mansfield, OH
(419) 589-7050



An administrative record containing information upon which U.S. EPA will base its decisions has been placed at:

Mansfield Public Library - Main Branch
43 W. Third St.
Mansfield, OH
(419) 521-3100

U.S. Environmental Protection Agency
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77 West Jackson Boulevard (P-19J)
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ADDRESS CORRECTION REQUESTED

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